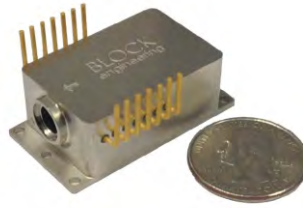


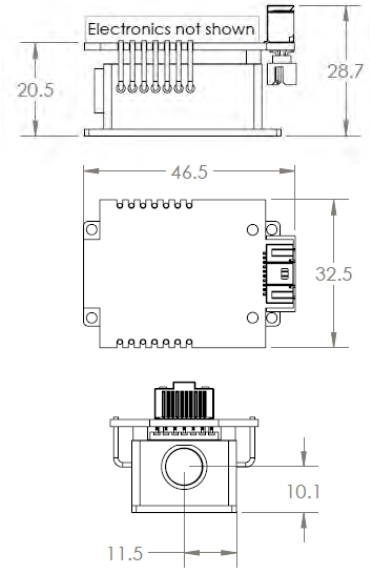
宽范围可调谐中红外OEM激光模块

特点：

- 业内领先的宽范围可调谐QCL
- 可选调谐宽度 $> 250 \text{ cm}^{-1}$ ，范围 $5.4\text{-}12.8 \mu\text{m}$
- 激光控制电子系统可控激光模块数量高达4个
- 最快速的调谐（稳定时间 $< 15 \text{ ms}$ ）
- 优异的光束指向稳定性
- 结构紧凑灵活的控制电子系统
- 尺寸超小、质量超轻的激光器模块
- 紧凑灵活的控制电子系统封装

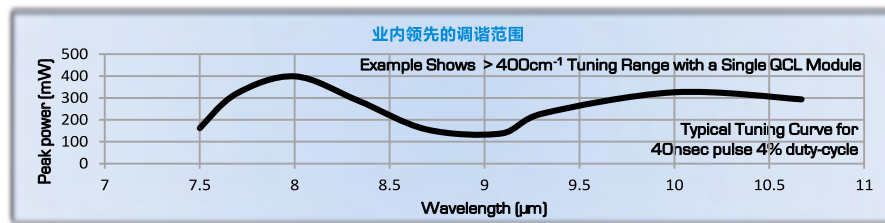


Tunable Laser Module & Electronics

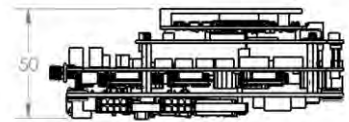


灵活的系统配置

Components/Features	mini-QCL™ 200
Tunable Laser Module	✓
Laser Module Electronics	✓
Laser Control Electronics	✓
System Control Electronics	✓
Ethernet Communication (HTML/SOAP)	✓



mini-QCL-200 Control Electronics



[All dimensions in mm]

Parameter	Specification
Module Tuning Range	Selected $> 250 \text{ cm}^{-1}$ ranges over $5.4\text{-}12.8 \mu\text{m}$ Electronics configurable up to 4 Laser Modules
Spectral Linewidth	2 cm^{-1} (typical)
Spectral Accuracy / Repeatability	$< 2 \text{ cm}^{-1}$ / $< 0.5 \text{ cm}^{-1}$ (typical)
Maximum Peak Power	150 – 400 mW (typical, see tuning curve)
Average Power	Varies 2 – 20 mW across range (5 % duty cycle); ◻ can be increased with additional cooling
Power Stability	$< 5 \%$ pulse-to-pulse (typical) ; $< 0.05 \%$ over 10 msec @ 1 MHz
Pulse Width	30 – 300 nsec ◻ continuously variable with External Pulse Control ◻ 10-ns-resolution with Triggering
Pulse Repetition Frequency	Up to 3 MHz
Maximum Duty Cycle	2 – 20 % (depends on mounting & operating condition)
Beam Quality	Single spatial mode
Beam Diameter	2 x 4 mm, collimated output
Beam Divergence	$< 5 \text{ mrad}$
Pointing Stability	$< 1 \text{ mrad}$
Polarization	Vertically polarized, 100:1 extinction
Tuning Modes	Move Tune – manual control ; Step Tune – programmable sequences ; Sweep Tune – programmable linear sweeps
Step Tune Speed	10 cm^{-1} step in $< 1 \text{ msec}$ (max: 100 cm^{-1} step in $< 2 \text{ msec}$) Example: Step across 1000 cm^{-1} in 1.1 seconds with 100 steps with 10 msec dwell per step
Sweep Tune Speed	Linear sweep $> 25 \text{ cm}^{-1}/\text{msec}$
Computer Control	mini-QCL-100: Serial/RS232/RS485 (register ICD) HDMI - Analog/digital wavelength control mini-QCL-200: Ethernet with HTML/SOAP
Analog Control	Internal Trigger – with adjustable Sync-Out ; External Trigger – controls rising edge of pulse ; Pulse Control – controls rising & falling edges
Temperature, Operating / Storage	10 to $30 \text{ }^\circ\text{C}$ / -10 to $70 \text{ }^\circ\text{C}$
Electrical Power	12 – 24 Volts